WHAT IS CLAIMED IS:

1. A method of treating respiratory disorders which comprises administering to a mammal a therapeutically effective amount of a polysaccharide that binds to elastic fibers, thereby preventing enzymes, oxidants, or other injurious agent from contacting and damaging said elastic fibers.

2. The method of claim 1, wherein the polysaccharide is a glycosaminoglycan.

3. The method of claim 2, wherein the glycosaminoglycan is selected from the group consisting of hyaluronic acid, chondroitin sulfate A, chondroitin sulfate B, chondroitin sulfate C, heparan sulfate and heparin.

4. The method of claim 1, wherein the polysaccharide is dextran.

5. The method of claim 1, wherein said administering comprises delivery via a route selected from the group consisting of aerosol inhalation, dry powder inhalation, liquid inhalation and liquid instillation.

6. The method of claim 5, wherein said administering via aerosol inhalation comprises:

preparing a liquid formulation comprising the polysaccharide, wherein the concentration of the polysaccharide is less than about 5 mg/ml and the molecular weight of the polysaccharide is less than about 1.5×10^6 Daltons;

aerosolizing said liquid formulation to form a breathable mist such that the particle size of the polysaccharide is less than about 10 microns; and

delivering said therapeutically effective amount of the polysaccharide by inhalation of said breathable mist by said mammal.

7. The method of claim 6, wherein the molecular weight of the polysaccharide is less than about 587,000 Daltons.

8. The method of claim 6, wherein the molecular weight of the polysaccharide is less than about 220,000 Daltons.

9. The method of claim 6, wherein the molecular weight of the polysaccharide is less than about 150,000 Daltons.

10. The method of claim 6, wherein said breathable mist is formed by a nebulizer.

11. The method of claim 10, wherein said nebulizer operates at a pressure of at least about 15 psi.

12. The method of claim 10, wherein said nebulizer operates at a pressure of at least about 30 psi.

13. The method of claim 1, wherein the polysaccharide is chemically modified.

14. The method of claim 13, wherein the modification comprises cross-linking.

15. The method of claim 13, wherein the modification comprises addition of sulfate groups.

16. The method of claim 13, wherein the modification comprises addition of carboxyl groups.

17. The method of claim 13, wherein the modification comprises attachment of lipophilic side chains.

18. The method of claim 13, wherein the modification comprises introduction of acetyl groups.

19. The method of claim 13, wherein the modification comprises formation of an ester.

20. The method of claim 13, wherein the modification comprises reaction with a carbodiimide.

21. A method of administering to a mammal a therapeutic formulation comprising a polysaccharide at a selected dose via a respiratory tract, comprising:

formulating a solution comprising the polysaccharide to achieve a controlled polysaccharide size of between about 50,000 and 1.5 x 10^6 Daltons at a concentration of less than about 5 mg/ml (w/v) of the polysaccharide;

producing an aerosol of the solution such that a droplet of the aerosol has a median mass distribution size of between about 0.5 to about 10 microns; and

delivering said aerosol into said respiratory tract by inhalation.

22. The method of claim 21, wherein the selected dose of polysaccharide is in a range of about 10 μg/kg body weight/day to about 1 mg/kg body weight/day.

23. The method of claim 21, wherein the selected dose of polysaccharide is in a range of about 50 μg/kg body weight/day to about 500 μg/kg body weight/day.

24. The method of claim 21, wherein the selected dose of polysaccharide is in a range of about 100 μg/kg body weight/day to about 300 μg/kg body weight/day.

25. The method of claim 21 wherein the solution further comprises a drug.

26. The method of claim 25, wherein the drug is selected from the group consisting of terbutaline, albuterol (salbutamol) sulfate, ephedrine sulfate, ephedrine bitartrate, isoetharine hydrochloride, isoetharine mesylate, isoproteranol hydrochloride, isoproteranol sulfate, metaproteranol sulfate, terbutaline sulfate, procaterol, bitolterol mesylate, atropine methyl nitrate, cromolyn sodium, propranalol, fluroisolide, ibuprofin, gentamycin, tobermycin, pentamidine, penicillin, theophylline, bleomycin, etoposide, captopril, n-acetyl cysteine, verapamil, calcitonin, atriopeptin, .alpha.-1 antitrypsin (protease inhibitor), interferon, vasopressin, insulin, interleukin-2, superoxide dismutase, tissue plasminogen activator (TPA), plasma factor 8, epidermal growth factor, tumor necrosis factor, heparin, lung surfactant protein, and lipocortin.

27. The method of claim 21, wherein the polysaccharide is chemically modified.

28. The method of claim 27, wherein the solution further comprises a drug.

29. The method of claim 28, wherein the drug is selected from the group consisting of prostaglandins, amphotericin B, progesterone, isosorbide dinitrate, testosterone, nitroglycerin, estradiol, doxorubicin, beclomethasone and esters thereof, vitamin E, cortisone, dexamethasone and esters thereof, DPPC/DPPG phospholipids, and betamethasone valerete.

30. The method of claim 21, wherein a drug is conjugated to the polysaccharide.

31. A system for delivering a polysaccharide formulation to a respiratory tract of a mammal, comprising:

a mixture comprising a polysaccharide having a molecular weight of between about 50,000 and 1.5 x 10^6 Daltons at a concentration of less than about 5.0 mg/ml (w/v) of polysaccharide, and a breathable fluorocarbon propellant;

a cannister adapted to contain said mixture under pressure;

a valve connected to said cannister for regulating delivery of said mixture; and

a nozzle interconnected with said valve for transforming said mixture under pressure into an inhalable aerosol mist when said valve is actuated.

32. The system of claim 31, wherein the polysaccaride in said aerosol mist has a median mass distribution size of between about 0.5 to about 10 microns.

33. The system of claim 31 wherein said mixture further comprises a drug.